

## CLAIMS

We claim:

1. Read/write transducer for a hard disk drive, comprising:
  - a supporting body;
  - a read/write head carried by the supporting body; and
  - an optically detectable structure coupled to the supporting body and structured to cooperate with optical measurement means.
2. Read/write transducer according to claim 1, whereinsaid optically detectable structure comprises a pattern of elements having different optical properties.
3. Read/write transducer according to claim 1, wherein said optically detectable structure comprises zones that reflect an incident electromagnetic radiation alternating with zones non-reflective to said incident electromagnetic radiation.
4. Read/write transducer according to claim 1, wherein said optically detectable structure comprises a succession of crests and depressions alternating with one another.
5. Read/write transducer according to claim 1, wherein said optically detectable structure comprises a grating.
6. Read/write transducer according to claim 1, wherein said optically detectable structure is carried by said supporting body.
7. Read/write transducer according to claim 6, wherein said optically detectable structure is integral with said supporting body.

8. Read/write transducer according to claim 1, for a hard disk drive comprising at least one hard disk and means for supporting and positioning said read/write transducer), said supporting body presenting a generally parallelepipedal shape with a bottom face turned towards said hard disk), an upper face coupled to said supporting and positioning means, and four side faces, wherein said optically detectable structure is arranged on one of said side faces of said supporting body.

9. Process for manufacturing a read/write transducer for a hard disk drive, comprising the steps of:

providing a supporting body;  
applying a read/write head on said supporting body; and  
providing an optically detectable structure designed to cooperate with optical measurement means.

10. Manufacturing process according to claim 9, wherein said optically detectable structure is provided on said supporting body.

11. Manufacturing process according to claim 9, for a hard disk drive, comprising at least one hard disk and means for supporting and positioning said read/write transducer, said supporting body presenting a generally parallelepipedal shape with a bottom face turned towards said hard disk, an upper face coupled to said supporting and positioning means, and four side faces, wherein said optically detectable structure is formed on one of said side faces of said supporting body.

12. Manufacturing process according to claim 9, wherein said step of providing an optically detectable structure comprises the step of forming a pattern of elements having different optical properties.

13. Manufacturing process according to claim 9, wherein said step of providing an optically detectable structure comprises the step of forming zones that reflect an incident electromagnetic radiation alternating with zones non-reflective to said incident electromagnetic radiation.

14. Manufacturing process according to any one of the claims from 9 wherein said step of providing an optically detectable structure comprises the step of forming a succession of crests and depressions alternating with one another.

15. Manufacturing process according to claim 9, wherein said step of providing an optically detectable structure comprises the step of forming a grating.

16. Manufacturing process according to claim 15, hwherein said step of forming a grating comprises the steps of:

depositing an oxide layer on a face of said supporting body;

defining said layer of oxide using a mask reproducing the pattern of said grating;

and

metallizing the defined oxide layer.

17. Manufacturing process according to claim 15, wherein said step of forming a grating comprises the steps of:

defining a face of said supporting body using a mask reproducing the pattern of said grating; and

metallizing said defined face.

18. Hard disk drive comprising:

a hard disk;

a read/write transducer;

means for supporting and positioning said read/write transducer; and

an optically detectable structure carried by either said read/write transducer or said supporting and positioning means and designed to cooperate with optical measurement means.

19. Hard disk drive according to claim 18, wherein said optically detectable structure is a pattern of elements having different optical properties.

20. Hard disk drive according to claim 18, wherein said optically detectable structure is carried by said read/write transducer.

21. Hard disk drive according to claim 20, wherein said optically detectable structure is integral with said read/write transducer.

22. Hard disk drive according to claim 20 wherein said read/write transducer comprises a supporting body and a read/write head, said optically detectable structure being carried by said supporting body.

23. Hard disk drive according to claim 22, wherein said supporting body has a generally parallelepipedal shape with a bottom face turned towards said hard disk, an upper face coupled to said supporting and positioning means, and four side faces, and wherein said optically detectable structure is arranged on one of said side faces of said supporting body.

24. Optical system for measuring the position of a read/write transducer for a hard disk drive comprising:

means for supporting and positioning said read/write transducer;

an optically detectable structure carried by either said read/write transducers or said supporting and positioning means; and

optical measurement means cooperating with said optically detectable structure for measuring the position of said read/write transducer.

25. Optical measuring system according to claim 24, wherein said optically detectable structure is a pattern of elements having different optical properties.

26. Optical measuring system according to claim 24, wherein said optical measurement means comprise laser transmitter means designed to generate, and direct towards said optically detectable structure, a laser beam, and laser receiver means arranged in such a way as to intercept a laser beam reflected by said optically detectable structure.

27. Optical measuring system according to claim 26, wherein it comprises optical guide means having a first end optically coupled to said laser transmitter means and a second end supported to direct said laser beam towards said optically detectable structure and to intercept said laser beam reflected by said optically detectable structure.

28. Optical measuring system according to claim 27, for a hard disk drive comprising a plurality of hard disks and a plurality of means for supporting and positioning respective read/write transducers, wherein it further comprises means for moving said second end of said optical guide means for placing it at said optically detectable structures carried by said supporting and positioning means or by the respective read/write transducers.

29. Optical measuring system according to claim 24, wherein said optically detectable structure is carried by said read/write transducer.

30. Optical measuring system according to claim 29, wherein said optically detectable structure is integral with said read/write transducer.

31. A device comprising:  
a read/write transducer for a hard disk drive;  
an optically detectable structure coupled with the transducer;

means for detecting light reflected by the optically detectable structure and for interpreting, from the reflected light, the position of the transducer relative to the detection means.

32. The device of claim 31, wherein the optically detectable structure is a pattern of elements having different optical properties.

33. The device of claim 31, wherein the read/write transducer comprises a supporting body and a read/write head.

34. The device of claim 33, wherein the optically detectable structure is integral to the read/write head.

35. A method, comprising:  
directing a light beam at an optically detectable structure coupled with a read/write transducer of a hard disk drive;  
detecting the light beam reflected from the optically detectable structure; and  
determining the position of the transducer by analysis of characteristics of the reflected light beam.

36. The method of claim 35, wherein the optically detectable structure is a pattern of elements having different optical characteristics.